SLIDES: Linking Growth, Land Use and Water

Jim Holway

Session 6: The Urbanizing West: Limits to Water, Limits to Growth

"Linking Growth, Land Use and Water"

Jim Holway
Director of Sustainability Partnership & Professor of Practice
Arizona State University

Historically, throughout the United States, there has been a disconnect between water supply considerations and urban land use planning. Reasons for this disconnect range from the relative roles of federal, state and local government; to the character of growth; to the differing nature of land use and water resources planning. Water is typically regulated at the state and federal level with water quantity in particular regulated by the western states.

By contrast, the owners of water delivery and treatment infrastructure are typically not the states but are local governments or private water companies and irrigation districts. In addition, although land use significantly impacts water management, regulation of land use and growth is generally the exclusive domain of local government and actual land development investments are made by private property owners.

Arizona innovations to ensure sustainable water supplies sufficient for continued urban growth include: adoption of conservation programs and investments in utilization of renewable supplies by cities; within Active Management Areas (AMA's), the conservation and assured water supply requirements of the 1980 Groundwater Management Act; groundwater recharge and recovery programs including a groundwater replenishment district and the Arizona Water Banking Authority; water rights settlements with Native American communities; requirements for inclusion of a water resources element in comprehensive or general plans by larger or fast growing local governments throughout the state; 2005 legislative changes requiring water supply, drought and conservation planning by water

providers throughout the state; and finally 2007 legislative changes that allow cities and towns, as well as counties if they have a unanimous vote of their county supervisors, outside of AMA's to adopt an ordinance requiring new subdivisions to have a 100 year adequate water supply.

Arizona has been in a unique position relative to the linkages between water and growth. Within the AMA's, new development is subject to rigorous assured water supply rules. These rules require securing a 100 year supply of renewable or imported water as well as demonstrating adequate water quality and financial capability before any land can be subdivided. In the non-AMA, primarily rural areas, however, Arizona has had one of the weakest programs in the country. In these areas, weak state rules have generally been considered to prevent local governments from making stronger regulatory linkages between growth and adequate supplies. Though it is too soon to evaluate the impact of the recent legislation granting water adequacy authority to local governments throughout the state, or the 2005 water supply planning requirements, these will, at a minimum, raise awareness of water resources issues and likely increase the call to improve available information. This presentation will also briefly identify water supply adequacy approaches of other southwestern states.

The Urbanizing West: Limits to Water, Limits to Growth

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Jim Holway

Global Institute of Sustainability

Civil & Environmental Engineering

Arizona Water Institute

WATER & LAND USE
THE MISSING LINK

WHY HISTORICALLY A DISCONNECT

Water Use – regulated at state & federal levels

- Reacting to crisis, facilitating econ development
- Water & Land – separate commodities, separate property rights

WATER & LAND USE
THE MISSING LINK

WHY HISTORICALLY A DISCONNECT

Land Use – regulated by local government

- Avoid nuisance, grow & increase tax base

- Water historically not examined in comp. plans
  - Planners & water managers don't interact
- Comprehensive plans typically not followed
  - Too general, different elements conflict
  - Investment decisions – incremental & disconnected
- State & Local interests may be inconsistent

WATER & LAND USE
THE MISSING LINK

WHY HISTORICALLY A DISCONNECT

- Significant growth on urban fringe and rural areas
  - with little or no planning capacity
- The regional and local water related impacts of development do not line up
  - Local areas receive benefit of development, but may not bear impact on water resources
- Inadequate willingness/ability to invest in water resources planning or management – at state & local level
- Assumption water will move uphill towards development
  - Just buy the rights and build infrastructure
- Leave it to the experts – water is complicated

...trust us!

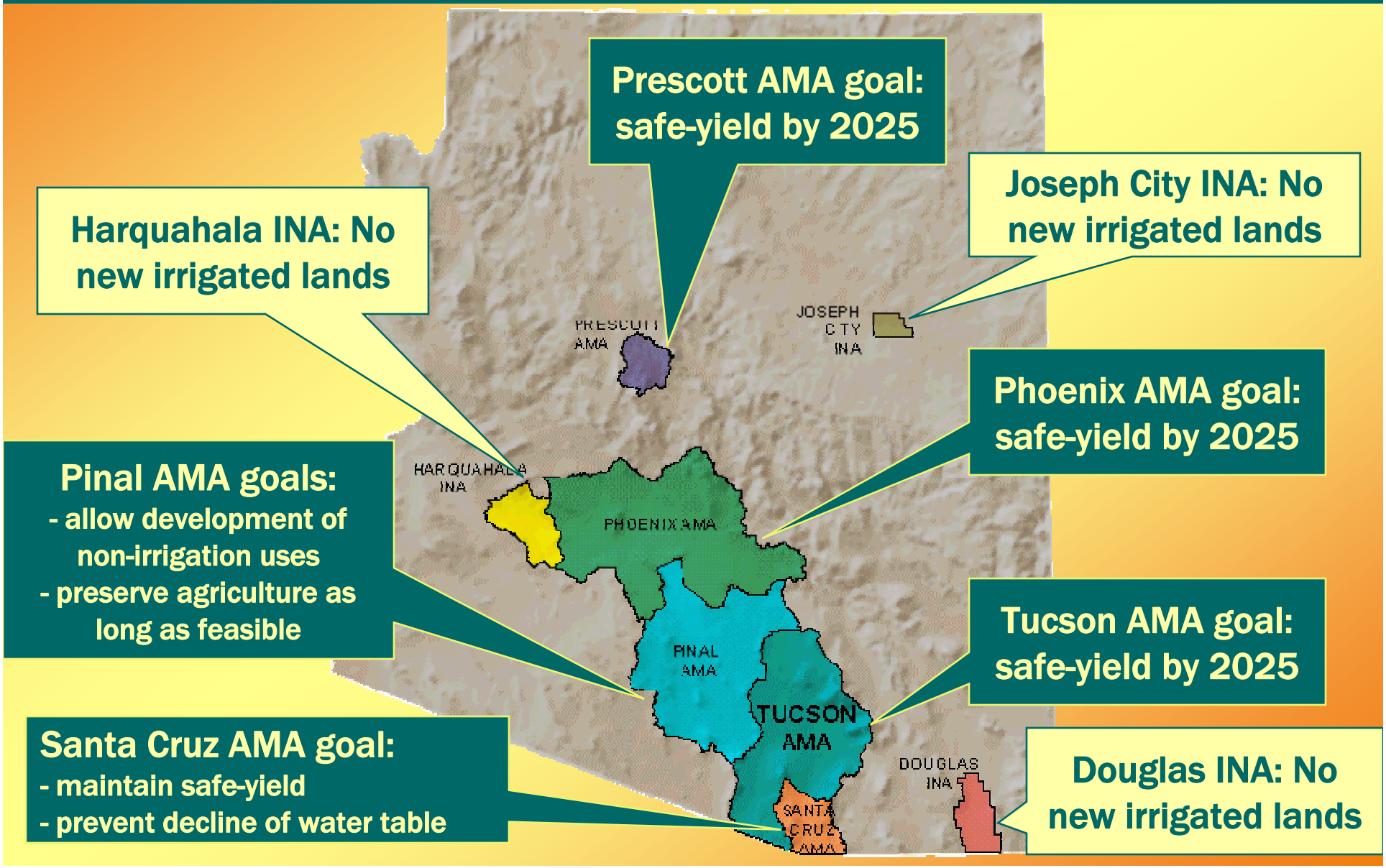
Arizona's Management Framework..

Re-distributive	***Regulatory***
Constituent	***Distributive***

- Strong Regulatory Approach
- Focus on Management Areas vs Statewide
- Choose State vs Regional/Local Control
- Maintained Groundwater / Surface Water Dichotomy
- Adopted Rights System with Grandfathering

..... & Consequences

Water Management Areas



ARIZONA'S WATER MANAGEMENT TOOLS

Active Management Areas

- Withdrawal Authorities
- Demand Management: Conservation Requirements & Use Restrictions
- Supply Management: Conversion to Renewable Water Supplies

SUPPLY MANAGEMENT

ASSURED WATER SUPPLY CRITERIA

- Physical, Legal, & Continuous availability for 100 Years
- Adequate Quality
- Financial Capability
- Consistent with Conservation Targets
- Consistent with AMA Goals
  - Safe-yield in Phoenix, Tucson, Prescott AMAs

ASSURED WATER SUPPLY

Methods of Meeting Goal Requirement

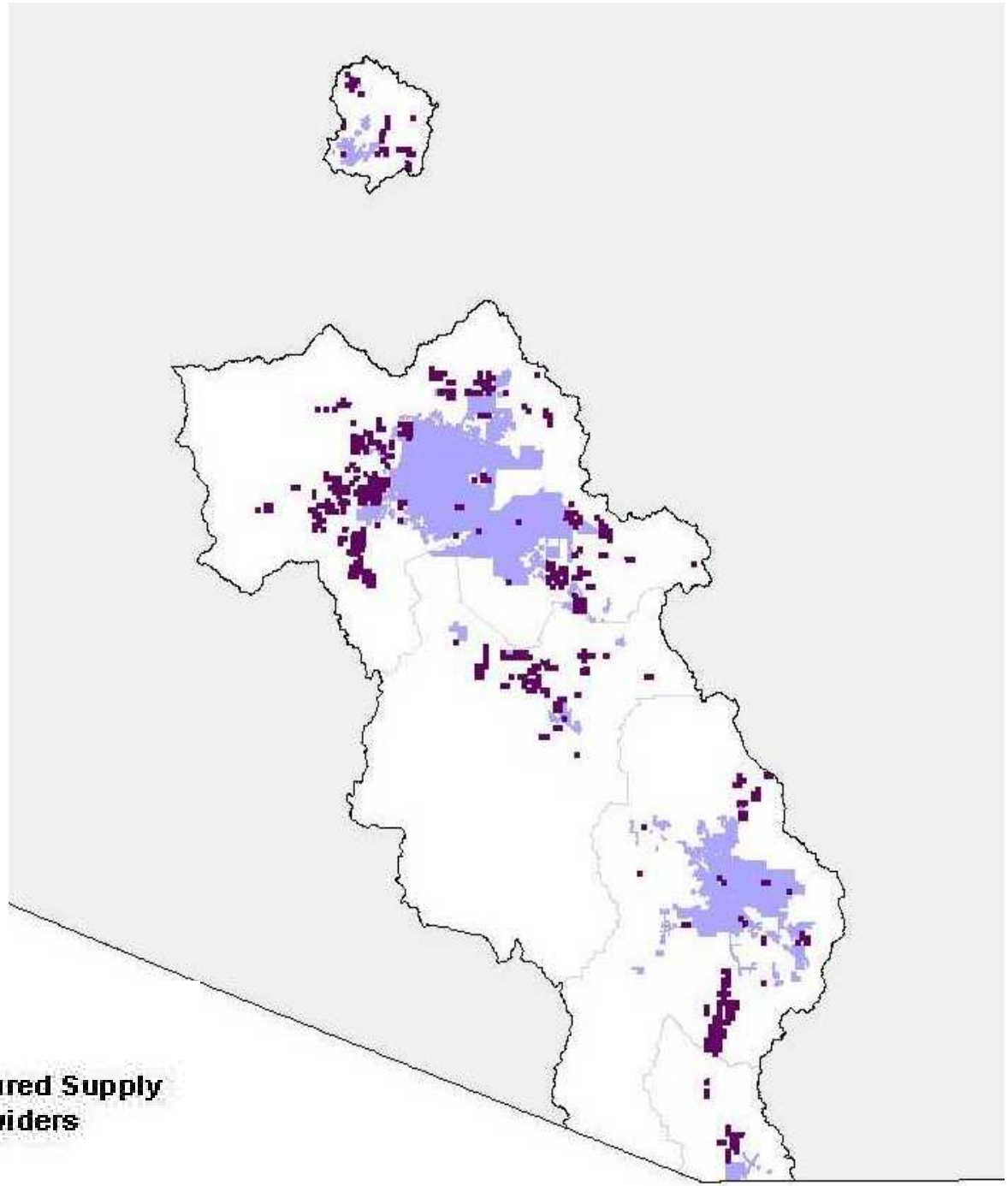
- Use of renewable supplies (either directly or via underground storage and recovery):
  - Surface water
  - Effluent
- Membership in the Central Arizona Groundwater Replenishment District
- Groundwater imported from certain basins
- Dry lot subdivisions of less than 20 lots are exempt

Two means of establishing an Assured Water Supply:

Certificate of Assured Water Supply
(individual subdivision)

Designation of Assured Water Supply
(blanket for water provider)

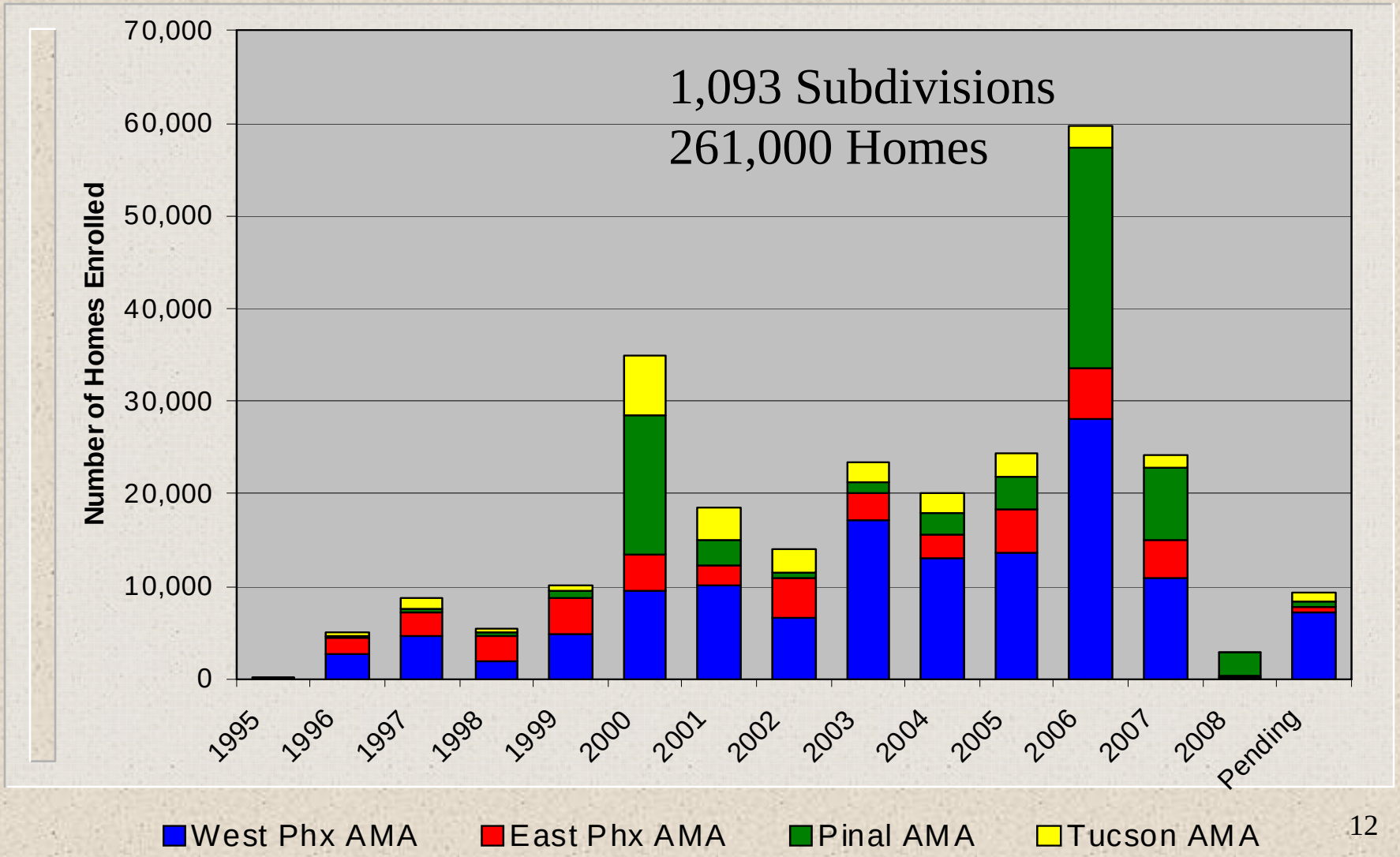
Certificates of Assured Water Supply Issued



Arizona
Non-AMA Area
Sections Issued Certificates of Assured Supply
Designation of Assured Supply Providers
Active Management Areas

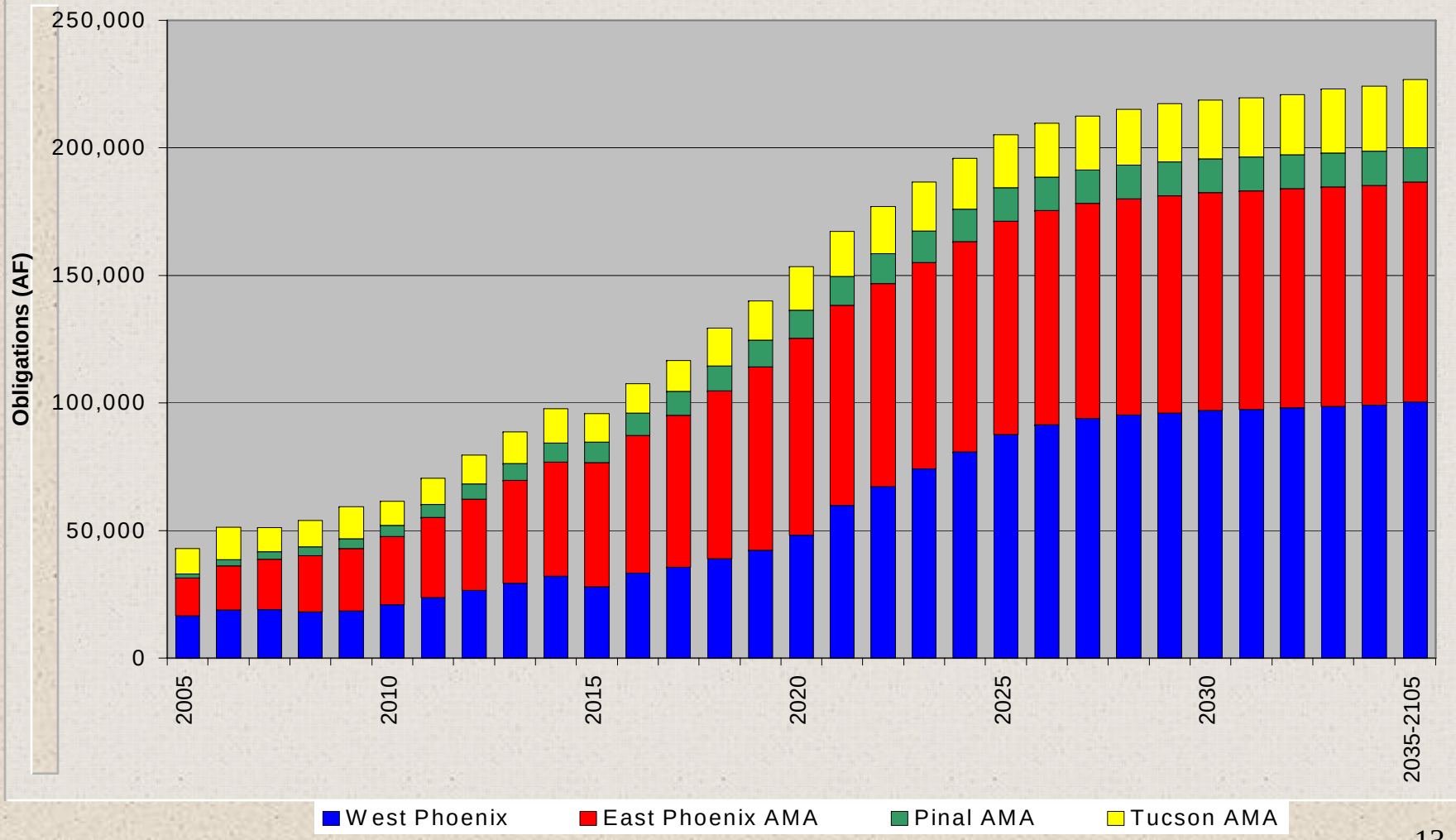
MEMBER LAND ENROLLMENT

As of February 28, 2008



Slide from: Cliff Neal, CAGRD

PROJECTED OBLIGATIONS



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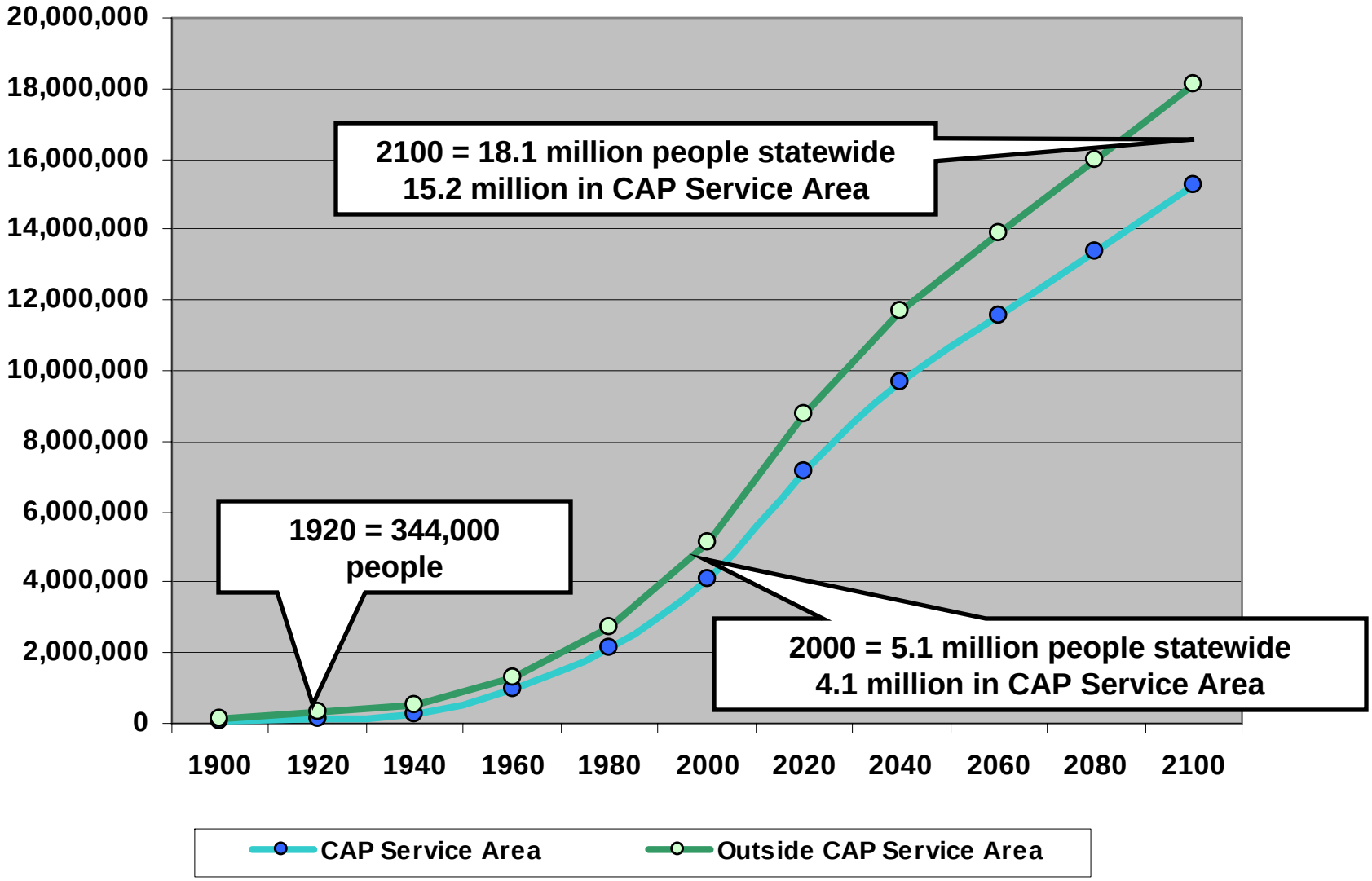
Population Estimates and Projections 1900 to 2100



SOURCE: U.S. Census Bureau 1900 to 2000; Arizona Department of Economic Security 2010 to 2050 (April 2006 Projections); Global Institute of Sustainability 2060 to 2100 (June 2006)

AZ Water Management Policy

Program Design Considerations

- What are Water Mgmt Goals & Objectives
- What Actions Do We Want To Affect
  - Location & type of development, Uses, Supplies
- How Can Those Actions Be Influenced
  - Investments, Behaviors & Actions
- What Tools Do We Have Available

AZ Supply Management Programs

Re-distributive	***Regulatory***
Constituent	***Distributive***

- Secure Supplies for New Development
- Who is the Decision-Maker?
- Developers, Landowners, Local Govt.
- Water Providers Make Investments
- Need for State Control
- Required Mechanism to Meet Rules - GRD

WATER & LAND USE
What Role For General Plans

Water Resources Element

- Growing Smarter/Plus requires a water resources element from municipalities over 2,500 unless under 10,000 and with a growth rate of less than 2%, and counties with pops greater than 125,000
- 4 counties and 23 communities outside of AMAs qualify
- Over 50,000 pop, due at end of 2002 (2); under 50,000, end of 2003 (21)

WATER & LAND USE
What Role For General Plans

Water Resources Element Requirements

- Identify known legally and physically available supplies
- Identify demand resulting from growth projected in general plan
- Identify how demand will be served by currently available supplies or a plan to obtain additional necessary water supplies - (all from existing data):

Conclusions:

- Outside of AMAs, water elements have limited impact

AZ Water Provider Plans

HB 2277 – 2005 Legislative Session

- Water Supply Plan – sources, service area, historic & projected demands. Due 1/07 year later for small
- Drought Preparedness Plan – response actions & public information
- Water Conservation Plan – measures to reduce loss, increase efficiency, consider rate structure
- Report Water Use – starting May 2007 for 2006

Water Adequacy – Strengthening AZ's Statewide Program

HB 2693 / SB 1575 – 2007 Legislation

- Outside AMA County Supervisors may, by unanimous vote, adopt an ordinance prohibiting final plat approval if adequacy not demonstrated to ADWR, city must follow
- Potential exemptions to:
  - County may allow water hauling – indication on deed
  - ADWR Director may allow 20 years for water supply development
  - ADWR director can exempt if significant capital investment
- City can adopt own ordinance if County does not
- Water Providers in jurisdiction eligible for water supply development fund if jurisdictions adopt ordinance

Adequate Water Supply Approaches

Hierarchy of Approaches

- Do Nothing – Buyer Beware
- Buyer Informed – Subsequent Buyers?
- Public Notice – Comment/Protest Right?
- Require Demonstration of _____ Year Supply
- Require Renewable Supply & Replacement of Mined Groundwater (Safe-Yield?)
- Local Area Sustainability for _____ Years
- Recovery from Previous Aquifer Depletion

Adequate Water Supply Approaches

California

- SB 221 (2001) – Effective 1/2002
  - Apply to subdivision > 500 units
  - Developer must demonstrate 20 yr supply
  - Must consider normal & dry years
  - Water provider must verify adequacy
- SB 610 (2001) – Proj. subject to CEQA
  - Requires water supply assessment

Adequate Water Supply Approaches

Nevada

- State Engineer reviews all subdivisions. Approval guarantees adequate water
- Utilities must secure permanent water rights to provide continuous & adequate supplies.
- Utility plans reviewed by Nevada Public Utilities Commission or by So NV Water Authority for Las Vegas area
- Cities & Counties have no explicit authority to adopt stricter standards

Adequate Water Supply Approaches

Colorado

- Counties Required to Establish Adequacy Requirements for Subdivisions
- State Engineer reviews for consistency – opinion is advisory only
  - El Paso County – requires 300 year supply
  - Denver Basin allocated based on 100 years
- State Engineer also review for "material injury"

Adequate Water Supply Approaches

Colorado – 2008 Legislation (HB 1141)

- Local Govt. shall not approve development unless applicant demonstrates adequate supply
  - Applies to development over 50 lots
  - Local govt has sole discretion to determine adequacy
  - Local govt can require for smaller developments
  - Includes consideration of hydrologic variability & conservation

Adequate Water Supply Approaches

New Mexico

- (1995 & 2002 Statutes)
  - Counties required to establish adequacy standards for subdivisions in unincorporated areas
  - Most cities may adopted their own standards
  - Albuquerque efforts undermined by County

Adequate Water Supply Approaches

Texas

- SB 1323 (1999)
  - TNRCC guidance on certifying sufficient water for subdivision's maximum future demand
  - County & Municipality MAY require certificate
- SB 1
  - A new provider can not be started unless adjacent providers refuse service